## NEET Physics question with answer

1. A zener diode has a contact potential of 1 V in the absence of biasing. It undergoes Zener breakdown for an electric field of $10^6$ V-$m^{-1}$ at the depletion region of $p$-$n$ junction. If the width of the depletion region is 2.5 μm, what should be the reverse biased potential for the Zener breakdown to occur?
   a) 3.5 V
   b) 2.5 V

   c) 1.5 V
   d) 0.5 V

   **Ans:b**

2. Let $n_e$ and $n_h$ represent the number density of electrons and holes in a semiconductor. Then

   a) $n_e > n_h$ if the semiconductor is intrinsic
   b) $n_e < n_h$ if the semiconductor is intrinsic

   c) $n_e \neq n_h$ if the semiconductor is intrinsic
   d) $n_e = n_h$ if the semiconductor is intrinsic

   **Ans:d**

3. The circuit diagram shows a logic combination with the states of output $X$, $Y$ and $Z$ given for inputs $P$, $Q$, $R$ and $S$ all at state 1. When inputs $P$ and $R$ change to state 0 with inputs $Q$ and $S$ still at 1, the states of outputs $X$, $Y$ and $Z$ change to

   

   a) 1, 0, 0
   b) 1, 1, 1

   c) 0, 1, 0
   d) 0, 0, 1

   **Ans:c**

4. The combination of the following gates produces

   

   a) AND gate
   b) NAND gate

   c) NOR gate
   d) OR gate

   **Ans:a**

5. In a triode amplifier, $\mu = 25$, $r_p = 40$ kilo ohm and load resistance $R_L = 10$ kilo ohm. If the input signal voltage is 0.5 volt, then output signal voltage will be
   a) $1.25$ $volt$
   b) $5$ $volt$

   c) $2.5$ $volt$
   d) $10$ $volt$

   **Ans:c**

6. The point representing the cut off grid voltage on the mutual characteristic of triode is

a) $S$                                    b) $R$

c) $O$                                    d) $P$

**Ans:d**

7.  Which is the name of the gate obtained by the combination shown in figure?



a)  NAND                               b) NOR

c)  NOT                                d) XOR

   **Ans:a**

8.  The $PN$ junction diode is used as

a)  An amplifier                       b) A rectifier

c)  An oscillator                      d) A modulator

   **Ans:b**

9.  In order to rectify an alternating current one uses a

a)  Thermocouple                       b) Diode

c)  Triode                             d) Transistor

   **Ans:b**

10.  1 atomic mass unit is equal to

a)  $\frac{1}{25}$ (mass of $F_2$ molecule)          b) $\frac{1}{14}$ (mass of $N_2$ molecule)

c)  $\frac{1}{12}$ (mass of one $C$-atom)            d) $\frac{1}{16}$ (mass of $O_2$ molecule)

   **Ans:c**

11.  $U^{238}$ decays into $Th^{234}$ by the emission of an $\alpha$ −particle. There follows a chain of further radioactive decays, either by $\alpha$ −decay or by $\beta$ −decay. Eventually a stable nuclide is reached and after that, no further radioactive decay is possible. Which of the following stable nuclides is the end product of the $U^{238}$ radioactive decay chain

a) $Pb^{206}$                           b) $Pb^{207}$

c) $Pb^{208}$                           d) $Pb^{209}$

   **Ans:a**

12.  Binding energy per nucleon plot against the mass number for stable nuclei is shown in the figure. which curve is correct

a) $A$　　　　　　　　　　　　　　　　b) $B$

c) $C$　　　　　　　　　　　　　　　　d) $D$

**Ans:c**

13. The rest energy of an electron is

a) $510\ KeV$　　　　　　　　　　　　b) $931\ KeV$

c) $510\ MeV$　　　　　　　　　　　　d) $931\ MeV$

**Ans:a**

14. In hydrogen atom, electron makes transition from $n = 4$ to $n = 1$ level. Recoil momentum of the $H$ atom will be

a) $3.4 \times 10^{-27} N - s$　　　　　　b) $6.8 \times 10^{-27} N - s$

c) $3.4 \times 10^{-24} N - s$　　　　　　d) $6.8 \times 10^{-24} N - s$

**Ans:b**

15. Nuclear fission experiments show that the neutrons split the uranium nuclei into two fragments of about same size. This process is accompanised by the emission of several

a) Protons and positrons

b) α-particles

c) Neutrons

d) Protons and α-particles

**Ans:c**

16. According to the Rutherford's atomic model, the electrons inside the atom are

a) Stationary　　　　　　　　　　　b) Not stationary

c) Centralized　　　　　　　　　　　d) None of these

**Ans:b**

17. Which of the following rays are not electromagnetic waves

a) γ-rays

b) β-rays

c) Heat rays

d) $X$-rays

**Ans:b**

18. The first line in the Lyman series has wavelength λ. The wavelength of the first line in Balmer series is

a) $\frac{2}{9}\lambda$　　　　　　　　　　　　　b) $\frac{9}{2}\lambda$

c) $\frac{5}{27}\lambda$　　　　　　　　　　　　d) $\frac{27}{5}\lambda$

**Ans:d**

19. Best neutron moderator is

a) Beryllium oxide

b) Pure water

c) Heavy water

d) Graphite

**Ans:a**

20. Imagine an atom made up of a proton and a hypothetical particle of double the mass of the electron but having the same charge as the electron. Apply the Bohr's atom model and consider all possible transitions of this hypothetical particle to the first excited level. The longest wavelength photon that will be emitted has wavelength $\lambda$ (given in terms of the Rydberg constant $R$ for the hydrogen atom) is equal to

a) $9/(5R)$

b) $36/(5R)$

c) $18/(5R)$

d) $4/R$

**Ans:c**